

WHAT IS CLAIMED IS:

1. An automotive alternator comprising:

a shaft rotatably supported by a case;

a rotor fixed to said shaft, said rotor being provided with:

a field winding for generating a magnetic flux on passage of an electric current therethrough; and

a plurality of claw-shaped magnetic poles disposed circumferentially on an outer circumferential side of said field winding, said claw-shaped magnetic poles being magnetized by said magnetic flux generated by said field winding; and

a stator provided with:

a cylindrical stator core supported by said case so as to envelop said rotor, a plurality of slots extending axially being formed in said stator core so as to line up circumferentially; and

a stator winding installed in said stator core,

wherein said stator core is constructed by laminating a magnetic steel plate, said stator core being provided with:

a cylindrical base portion;

a plurality of tooth portions disposed so as to extend from said base portion toward an axial center; and

said plurality of slots, each of said slots being defined by said base portion and an adjacent pair of said tooth portions;

ventilation channels are formed by a coil end group of said stator winding and said tooth portions of said stator core, a cooling airflow generated by rotation of said rotor flowing through each of said ventilation channels in a radial direction from an inner circumferential side; and

each of said tooth portions is formed such that a radial length  $h_t$  and a width  $b_t$  thereof satisfy an expression  $0.15 < b_t/h_t < 0.4$ .

2. The automotive alternator according to Claim 1, further comprising a cooling fan fixed to an axial end surface of said rotor.

3. The automotive alternator according to Claim 2 wherein an entire axial length of a blade of said cooling fan substantially overlaps said coil end group in a radial direction.

4. The automotive alternator according to Claim 2 wherein air discharge apertures are formed in a radial side surface of said case so as to correspond to said ventilation channels.

5. The automotive alternator according to Claim 4 wherein an entire axial length of a blade of said cooling fan substantially overlaps said coil end group in a radial direction.

6. The automotive alternator according to Claim 1 wherein said stator winding is installed in said stator core as a distributed winding.

7. The automotive alternator according to Claim 1 wherein said stator winding is constituted by a plurality of winding sub-portions each constructed by installing an electrical conductor so as to alternately occupy an inner layer and an outer layer in a slot depth direction in said slots at a predetermined slot interval.

8. The automotive alternator according to Claim 1 wherein said slots are formed at a ratio of two or more per phase per pole.

9. The automotive alternator according to Claim 1 wherein said ventilation channels are arranged at a non-uniform pitch.